

BC546/547/548/549/550

Switching and Applications

- High Voltage: BC546, $V_{CE0}=65V$
- Low Noise: BC549, BC550
- Complement to BC556 ... BC560



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ C$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|-----------------------------------|-----------|------------|
| V_{CBO} | Collector-Base Voltage : BC546 | 80 | V |
| | : BC547/550 | 50 | V |
| | : BC548/549 | 30 | V |
| V_{CEO} | Collector-Emitter Voltage : BC546 | 65 | V |
| | : BC547/550 | 45 | V |
| | : BC548/549 | 30 | V |
| V_{EBO} | Emitter-Base Voltage : BC546/547 | 6 | V |
| | : BC548/549/550 | 5 | V |
| I_C | Collector Current (DC) | 100 | mA |
| P_C | Collector Power Dissipation | 500 | mW |
| T_J | Junction Temperature | 150 | $^\circ C$ |
| T_{STG} | Storage Temperature | -65 ~ 150 | $^\circ C$ |

Electrical Characteristics $T_a=25^\circ C$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---------------|--------------------------------------|---------------------------------|-----------------------------------|------|------|-------|
| I_{CBO} | Collector Cut-off Current | $V_{CB}=30V, I_E=0$ | | | 15 | nA |
| h_{FE} | DC Current Gain | $V_{CE}=5V, I_C=2mA$ | 110 | | 800 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C=10mA, I_B=0.5mA$ | | 90 | 250 | mV |
| | | $I_C=100mA, I_B=5mA$ | | 200 | 600 | mV |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage | $I_C=10mA, I_B=0.5mA$ | | 700 | | mV |
| | | $I_C=100mA, I_B=5mA$ | | 900 | | mV |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $V_{CE}=5V, I_C=2mA$ | 580 | 660 | 700 | mV |
| | | $V_{CE}=5V, I_C=10mA$ | | | 720 | mV |
| f_T | Current Gain Bandwidth Product | $V_{CE}=5V, I_C=10mA, f=100MHz$ | | 300 | | MHz |
| C_{ob} | Output Capacitance | $V_{CB}=10V, I_E=0, f=1MHz$ | | 3.5 | 6 | pF |
| C_{ib} | Input Capacitance | $V_{EB}=0.5V, I_C=0, f=1MHz$ | | 9 | | pF |
| NF | Noise Figure | : BC546/547/548 | $V_{CE}=5V, I_C=200\mu A$ | 2 | 10 | dB |
| | | : BC549/550 | $f=1KHz, R_G=2K\Omega$ | 1.2 | 4 | dB |
| | | : BC549 | $V_{CE}=5V, I_C=200\mu A$ | 1.4 | 4 | dB |
| | | : BC550 | $R_G=2K\Omega, f=30\sim 15000MHz$ | 1.4 | 3 | dB |

h_{FE} Classification

| Classification | A | B | C |
|----------------|-----------|-----------|-----------|
| h_{FE} | 110 ~ 220 | 200 ~ 450 | 420 ~ 800 |

Typical Characteristics



Figure 1. Static Characteristic



Figure 2. Transfer Characteristic



Figure 3. DC current Gain



Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage



Figure 5. Output Capacitance



Figure 6. Current Gain Bandwidth Product

Package Dimensions

TO-92



Dimensions in Millimeters

BC546/547/548/549/550

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| Datasheet Identification | Product Status | Definition |
|--------------------------|------------------------|---|
| Advance Information | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. |
| Preliminary | First Production | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
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| | | | | | | | |
|-----------|-----------------|---|----------|-----------------------|---|-----------|---|
| BC548ABU | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | BULK | Line 1: BC548 Line 2: A Line 3: -&3 |
| BC548ATA | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | AMMO | Line 1: BC548 Line 2: A Line 3: -&3 |
| BC548ATF | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 2: A Line 3: -&3 |
| BC548ATFR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 2: A Line 3: -&3 |
| BC548B | Full Production |  Full Production | \$0.0473 | TO-92 | 3 | BULK | Line 1: \$Y (Fairchild logo) &Z (Asm. Plant Code) &3 (3-Digit Date Code) Line 2: BC Line 3: 548B |
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| BC548BTAR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | AMMO | Line 1: BC548 Line 2: B Line 3: -&3 |
| BC548BTF | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 2: B Line 3: -&3 |
| BC548BTFR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 2: B Line 3: -&3 |
| BC548BU | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | BULK | Line 1: BC548 Line 3: -&3 |

| | | | | | | | |
|------------|-----------------|---|----------|-----------------------|---|-----------|--|
| BC548C | Full Production |  Full Production | \$0.0473 | TO-92 | 3 | BULK | Line 1: \$Y (Fairchild logo) & Z (Asm. Plant Code) & 3 (3-Digit Date Code) Line 2: BC Line 3: 548C |
| BC548CBU | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | BULK | Line 1: BC548 Line 2: C Line 3: -&3 |
| BC548CTA | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | AMMO | Line 1: BC548 Line 2: C Line 3: -&3 |
| BC548CTAR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | AMMO | Line 1: BC548 Line 2: C Line 3: -&3 |
| BC548CTF | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 2: C Line 3: -&3 |
| BC548CTFR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 2: C Line 3: -&3 |
| BC548TA | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | AMMO | Line 1: BC548 Line 3: -&3 |
| BC548TAR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | AMMO | Line 1: BC548 Line 3: -&3 |
| BC548TF | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 3: -&3 |
| BC548TFR | Full Production |  Full Production | \$0.0238 | TO-92 | 3 | TAPE REEL | Line 1: BC548 Line 3: -&3 |
| BC548_D81Z | Full Production |  Full Production | N/A | TO-92 | 3 | TAPE REEL | Line 1: \$Y (Fairchild logo) & Z (Asm. Plant Code) & 3 (3-Digit Date Code) Line 2: BC548 |

* Fairchild 1,000 piece Budgetary Pricing

** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

Package marking information for product BC548 is available. [Click here for more information](#).

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Models

| Package & leads | Condition | Temperature range | Software version | Revision date |
|-----------------|----------------------------|-------------------|------------------|---------------|
| PSPICE | | | | |
| TO-92-3 | Electrical | 25°C | N/A | N/A |

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Qualification Support

Click on a product for detailed qualification data

| Product |
|---------------------------|
| BC548 |
| BC548A |
| BC548ABU |
| BC548ATA |
| BC548ATF |
| BC548ATFR |
| BC548B |
| BC548BBU |
| BC548BTA |
| BC548BTAR |
| BC548BTF |
| BC548BTFR |
| BC548BU |
| BC548C |
| BC548CBU |

| |
|----------------------------|
| BC548CTA |
| BC548CTAR |
| BC548CTF |
| BC548CTFR |
| BC548TA |
| BC548TAR |
| BC548TF |
| BC548TFR |
| BC548_D81Z |

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